

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/097114 A2

(51) International Patent Classification⁷: **E01B**
(21) International Application Number:
PCT/US2004/012582
(22) International Filing Date: 23 April 2004 (23.04.2004)
(25) Filing Language: English
(26) Publication Language: English
(30) Priority Data:
60/465,407 25 April 2003 (25.04.2003) US

(71) Applicant and
(72) Inventor: KLAUDER, Louis, T., Jr. [US/US]; 833 Galer
Drive, Newtown Square, PA 19703 (US).

(74) Agent: COHEN, Gary, M.; Strafford Building Number
Three, 125 Strafford Avenue, Suite 300, Wayne, PA 19087-
3318 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

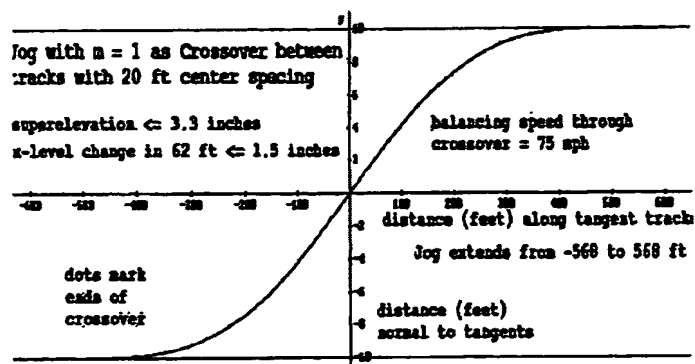
— of inventorship (Rule 4.17(iv)) for US only

Published:

— without international search report and to be republished
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: USE OF K_SPIRAL, BEND, JOG, AND WIGGLE SHAPES IN DESIGN OF RAILROAD TRACK TURNOUTS AND CROSSOVERS



(57) **Abstract:** Railroad track transition curves having shapes referred to as K_spirals, Bends, Jogs, and Wiggles are suitable for use in various situations where railroad track transition curves are needed and have good dynamic characteristics. Such shapes can be used for design of railroad track turnouts and crossovers. In order for such shapes to be incorporated into turnouts and crossovers, rail switch arrangements are provided that can accommodate the superelevation profiles on which the favorable dynamic characteristics of those shapes depend. Such shapes can be used for turnout and crossover design in conjunction with two mechanical switch arrangements that are themselves well known, namely the transfer table and stub switch arrangements, and with two switch arrangements that are variants of the commonly used movable point arrangement, namely an arrangement in which the through point rail is wide over its whole length and an arrangement using a through point rail of relatively conventional taper and width but one that is bowed downward between its point and the frog.